

### Abstract of the Disclosure

A catalyst composition comprising a nitrided and sulfided composition comprising a cobalt compound, a molybdenum compound, and an inorganic oxide compound. The catalyst composition is made by contacting a cobalt compound and a molybdenum compound with an inorganic oxide compound and then nitriding and sulfiding the Co/Mo-modified catalyst. The catalyst composition is used to hydrodesulfurize a heavy hydrocarbon feed containing organic sulfur compounds and aromatic compounds.